

Applicants thank the Examiner for the confirmation in the Office Action dated June 2, 2006 that claims 36, 37, 40 and 40 are allowable.

II. REJECTION OF CLAIMS UNDER 35 U.S.C. § 101 SHOULD BE WITHDRAWN

Claims 1-29, 31-35, 38, 39 and 41 stand rejected under 35 U.S.C. § 101 as being allegedly directed to non-statutory subject matter. Applicants respectfully disagree, and submit that these claims are fully compliant with 35 U.S.C. § 101, as interpreted by the Federal Circuit case law, and as indicated below. Based on the arguments presented herein below, the rejection under 35 U.S.C. § 101 of claims 1-29, 31-35, 38, 39 and 41 should be withdrawn.

35 U.S.C. § 101 clearly provides that “[w]hoever invents or discovers any new and useful process machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the condition and requirements of this title.” Indeed, it has been held that inventions that encompass algorithms and/or software are patentable subject matter under 35 U.S.C. § 101. The correct standard to apply for rejecting the claims of an application under 35 U.S.C. § 101 has been set forth in by the court in the *State Street* case. See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (referring to *In re Freeman*, 574 F.2d 1237 (CCPA 1978), *In re Walter*, 618 F.2d 758 (CCPA 1980), *In re Abele*, 684 F.2d 902 (CCPA 1982)).

It has been held that “[u]npatentable mathematical algorithms are identified by showing they are merely abstract ideas constituting disembodied concepts or truths that are not ‘useful.’” *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149

F.3d 1368, 1373. The State Street court asserted that “the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter.” *Id.* at 1374. In particular, the court held that in order to comply with the requirements of 35 U.S.C. §101, the claimed invention must produce “a useful, concrete and tangible result.” *Id.* at 1373 (emphasis added). This standard has been referred to in the Manual of Patent Examining Procedure 2106(IV). The claimed inventions may contain, e.g., computer programs, methods, logic/software arrangements, etc., which produce “as a whole, a tangible, useful ... result.” *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1361 (Fed. Cir. 1999).

In the Office Action, the Examiner points the *In re Warmerdam* case, and inappropriately applies this case to claims of the present application by stating that “applicant has recited steps that do nothing more than manipulate basic mathematical constructs,” and thus concluded the claims to be non-statutory. (Office Action dated June 2, 2006, p. 2, Ins 21-23). Applicants respectfully disagree.

The Examiner is incorrectly relying on *In re Warmerdam* as being the case law for rejecting claims under 35 U.S.C. §101, while not even mentioning the controlling case law for 35 U.S.C. §101, which is the *State Street* case mentioned above. Indeed, the *State Street* case provides the standard that has been adopted in the Manual of Patent Examination Procedure as requiring that the claimed invention must produce “a useful, concrete and tangible result” to be patentable under Section 101. (*State Street.* at 1373; and Manual of Patent Examining Procedure 2106(IV)).

Not only is requirements set forth in the *State Street* case completely excluded in the Office Action, the standard as set forth therein is not even mentioned.

Independent claims 1 and 34, respectively, recite method or system of “segmenting input data (comprising voxels) representing an image in order to locate a part of said image.” Independent claims 15, 20, 22, 23, 26, 31 and 33 and claims 35 and 41, respectively, recite method and system of “associating particular data in a space which has at least three dimensions.” Thus, all such independent claims provide useful, tangible or concrete results, as set forth in the State Street decision and other case (e.g., see *AT&T Corp. Excel* case), as well as referenced in the Manual of Patent Examining Procedure. Thus, it is clear that the recited methods of independent claims 1, 15, 20, 22, 23, 26, 31 and 33 and systems of independent claims 34, 35 and 41 are clearly within the realm patentable subject matter as authorized by of 35 U.S.C. § 101.

In the Office Action, the Examiner further contends that due to an “absence of any practical effect or significant independent acts,” these independent claims are not “within the domain of patentable subject matter.” (Office Action dated June 2, 2006, p. 3, Ins. 7-9). Applicants again disagree with this allegation.

It is respectfully asserted that the Examiner is not applying the appropriate standards in determining whether independent method claims 1, 15, 20, 22, 23, 26, 31 and 33 and independent system claims 34, 35 and 41 are statutory under 35 U.S.C. § 101. In particular, the court in the *AT&T Corp.* case confirmed that the “finding that the claimed process ‘transformed’ data from one ‘form’ to another simply confirmed that ... [the] method claims satisfy § 101 because the mathematical algorithm included within the process was applied to produce a number which had specific meaning -- a useful, concrete, tangible result” *AT&T Corp.*, 172 F.3d at 1359. The U.S. Patent and Trademark Office has acknowledged this test for statutory subject matter, and confirmed that statutory subject

matter is established in a claim when such claim recites “some practical application” and produces something that is concrete, tangible and useful.” (M.P.E.P. 2106(IV)(B)(1), p. 2100-12; and M.P.E.P. 2106(IV)(B)(ii), p. 2100-18).

In particular, with respect to independent claims 1 and, 34, each of these claims recites “partitioning ... nodes into at least two groups ... by a minimum-cut algorithm; and ... partitioning ... voxels into at least two segments by assigning each of said voxels to the segment corresponding to the group to which said corresponding voxel node for the voxel belongs.” Clearly, these independent claims recite the transformation of the data from one form into another form by partitioning the nodes into groups and voxels into particular segments as provided therein, i.e., providing multiple concrete, tangible and useful results. Further, an exemplary practical application of such claims is that each of the voxels is assigned to the segment corresponding to the group to which the corresponding voxel node for the voxel belongs. Accordingly, independent claims 1 and 34 fully comply with the standards as set forth in the *AT&T Corp.* case and M.P.E.P. 2106.

Concerning independent claims 15, 31, 35 and 41, each of these claims recites the formation of “a graph structure” using “a likelihood of association” of certain data with at least a part of a point. These claims clearly recite the transformation of the data from one form into another form, i.e., the formation of a graphs structure based on the likelihood of association, which is also the practical application as provided therein. Regarding independent claims 20, 22, 23 and 26, each of these claims recites the use of weights and the likelihood of association to associate various points. For at least similar reasons as stated above with reference to claims 15, 31, 35 and 41, Applicants respectfully assert that claims 20, 22, 23 and 26 also recite the transformation of the data from one

form into another form (i.e., the association of the points based on the weights and the likelihood of association). Further, the exemplary practical application is indeed the same association of the points as recited in these claims.

The Examiner also states that if “applicant were to include language in the claims, which indicates some practical effect of the performance of the method or the operation of the apparatus, the examiner believes that such an amendment would overcome the 101 rejection.” (Office Action dated June 2, 2006, p. 3, Ins. 15-17). As stated above, according to the case law and M.P.E.P., it is not necessary to provide a “practical effect” in the claims. However, Applicants clearly directed the Examiner’s attention to the fact that each and every independent claims that has been rejected under 35 U.S.C. § 101 conforms with the statutory requirements under § 101 and as set forth in the *AT&T* and *State Street* cases, and includes the “practical application” recited therein as suggested in M.P.E.P. 2106.

Accordingly, for at least the reasons set forth herein above, Applicants respectfully submit that the rejection of independent claims 1-29, 31-35, 38, 39 and 41 under 35 U.S.C. § 101 should be withdrawn.

III. CONCLUSION

In light of the foregoing, Applicants respectfully submit that pending claims 1-29 and 31-42 are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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